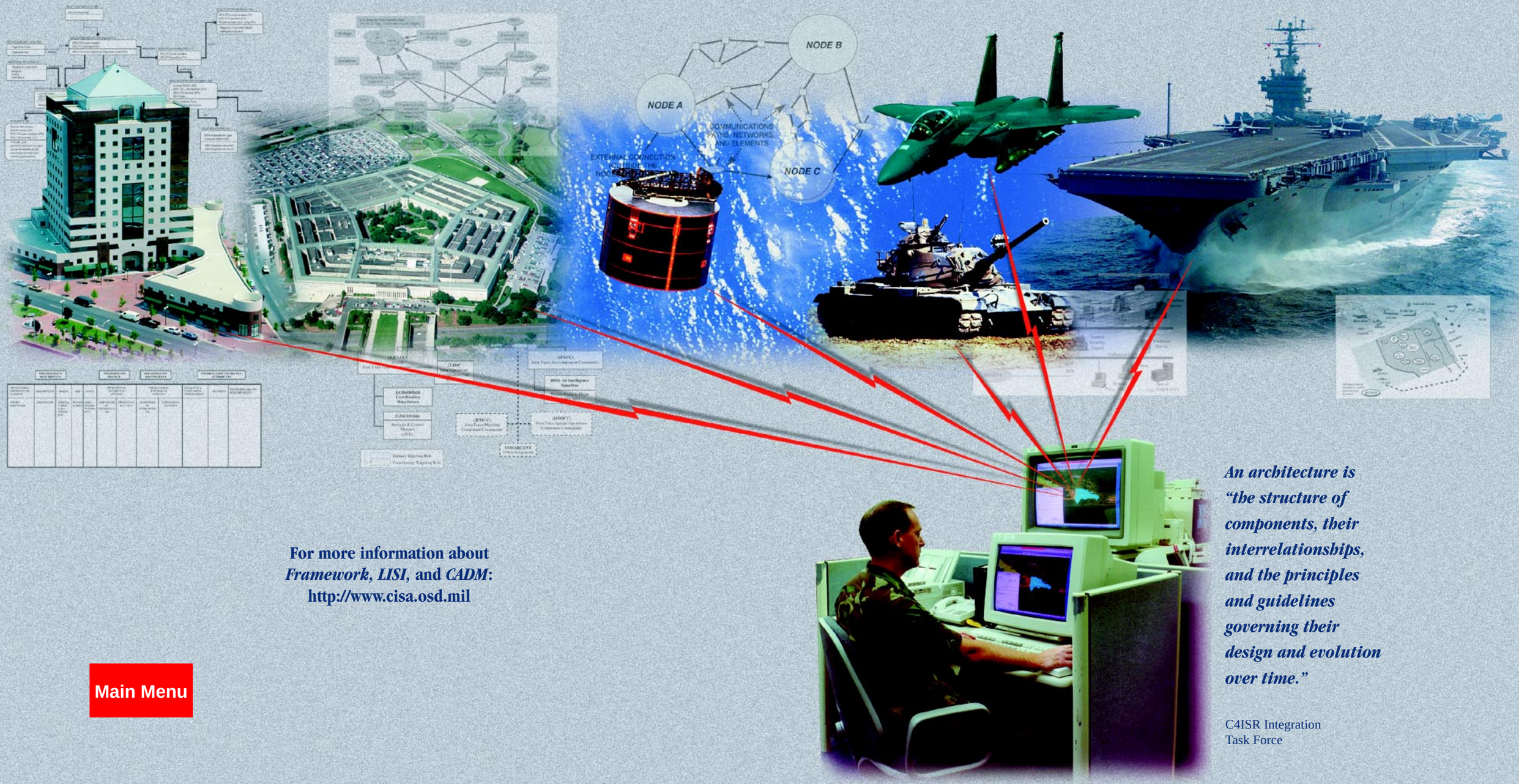
Integrated DoD Architectures

A Key to Achieving Information Superiority



For more information about *Framework*, *LISI*, and *CADM*:
http://www.cisa.osd.mil

An architecture is "the structure of components, their interrelationships, and the principles and guidelines governing their design and evolution over time."

C4ISR Integration
Task Force

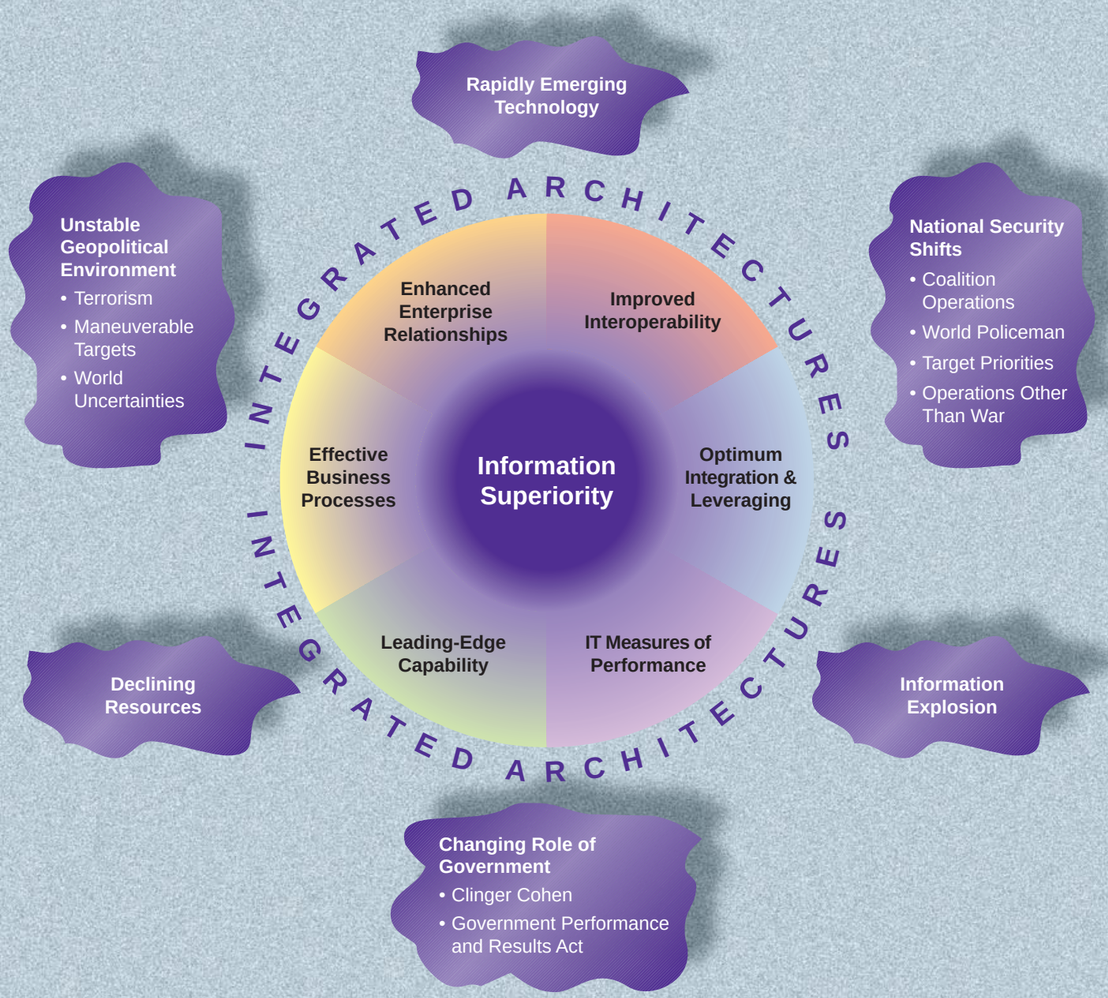
Main Menu

The Challenge

"Throughout history, gathering, exploiting, and protecting information have been critical in command, control, and intelligence….We must have information superiority: the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same.

"The American people will continue to expect us to win in any engagement, but they will also expect us to be more efficient in protecting lives and resources while accomplishing the mission successfully."

Joint Vision 2010



Today's environment poses numerous challenges that complicate the Department's goal of achieving information superiority. In order to realize information superiority, we must be able to field interoperable, integrated, and cost-effective capabilities. *Integrated architectures* enable us to understand and manage the complexity by providing a uniform context for examining issues. *Integrated architectures* also allow us to identify opportunities for increasing the effectiveness of our *go-to-war* capabilities and provide a basis for developing defensible investment strategies.

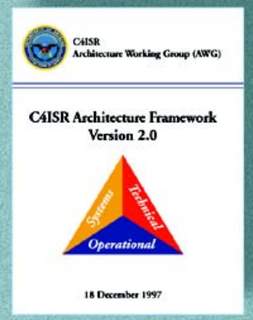
The Enabler

"The Defense Science Board and other major studies have concluded that one of the key means for ensuring interoperable and cost-effective military systems is to establish comprehensive architectural guidance for all of DoD."

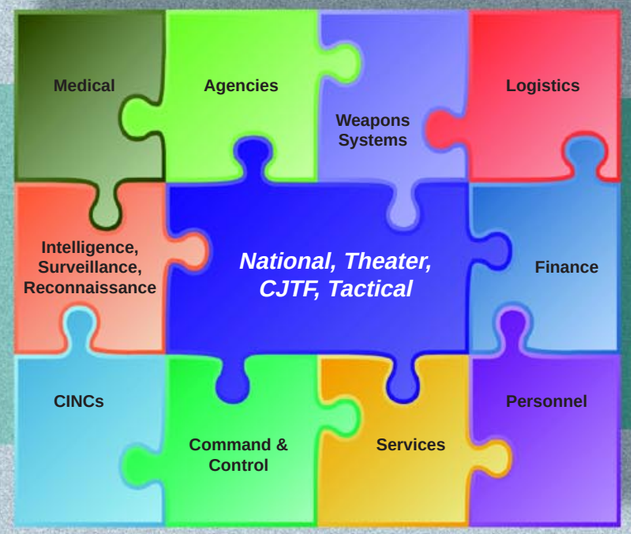
USD(A&T), ASD(C3I), Joint Staff/J6 Memorandum, 14 January 1997

Distributed Architecture Development…

Enabled by Uniform Guidance…



Results in Interrelatable Architectures…



Providing Integrated Context for…

- *Joint Operations Planning*
- *Investment Strategies*

The *Framework* is the community's agreed-upon approach to standardized architectures. The *Framework* provides common guidance to ensure that multiple DoD architectures, developed by organizations around the world, can readily be compared, analyzed, and integrated.

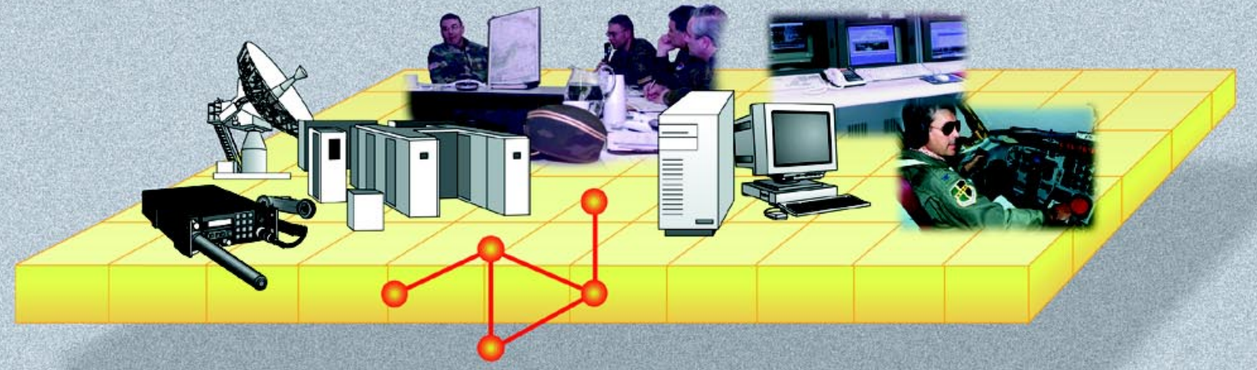
The *Framework* furnishes DoD with the basis for satisfying new legislative requirements regarding the management of information technology by providing the means or "audit trail" for relating measures of system and technology performance to mission and functional effectiveness.

One Architecture...Three Views

Operational View

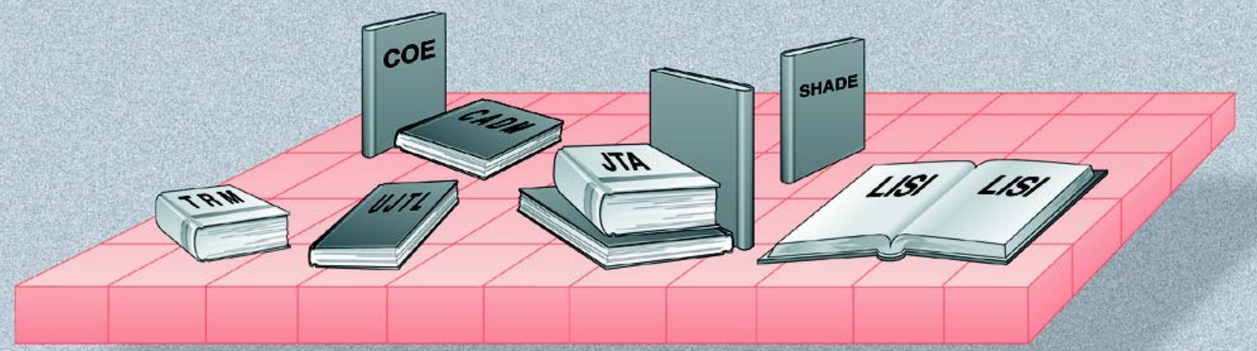
The Operational View describes and interrelates the operational elements, tasks and activities, and information flows required to accomplish mission operations.

Systems View



The Systems View describes and associates systems and their interconnections and performance to the operational view and its requirements.

Technical View



The Technical View describes the minimal set of rules governing the arrangement, interaction, and interdependence of system parts or elements.

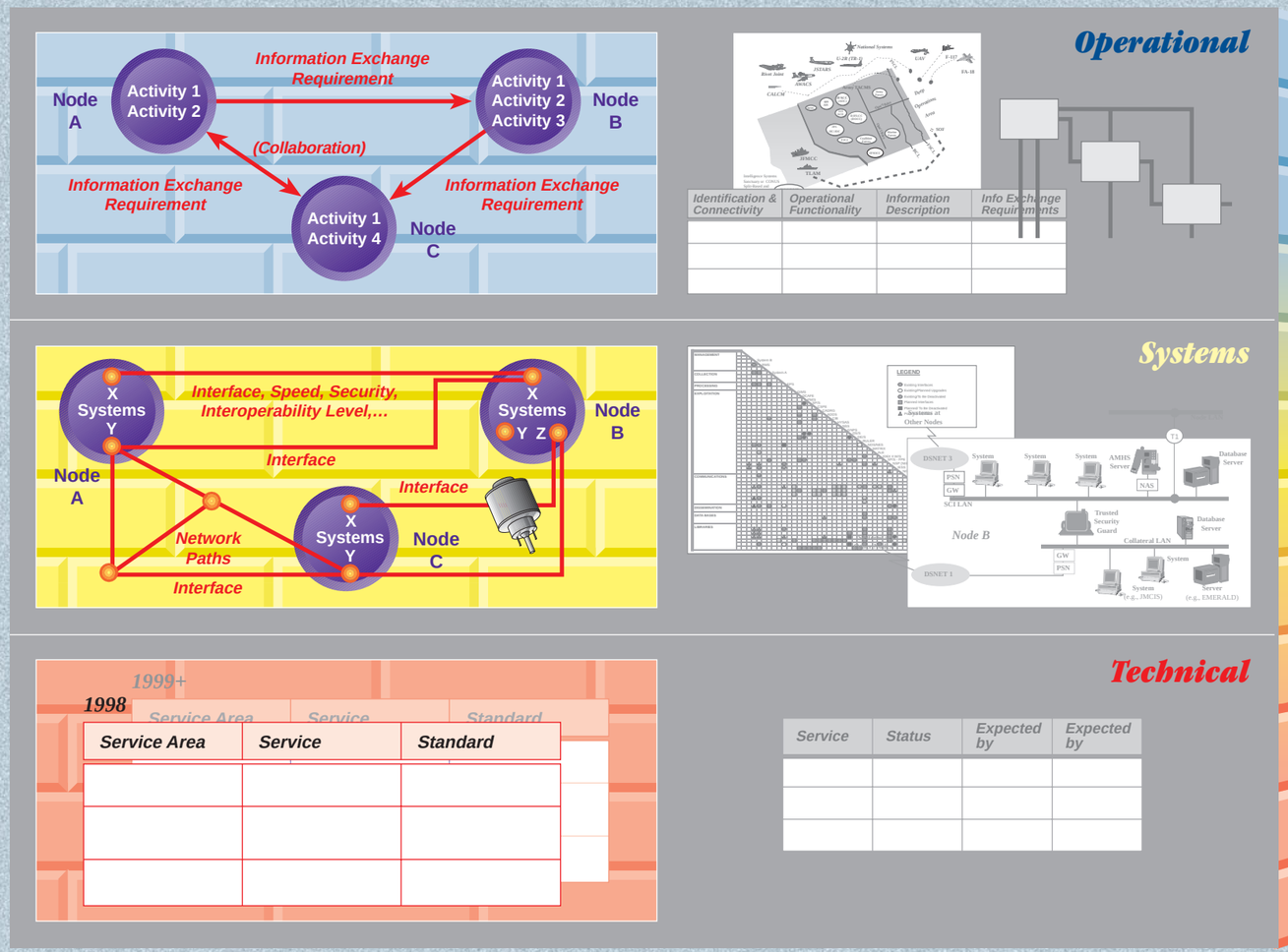
The Framework Specifies Products and References for Each Architecture View

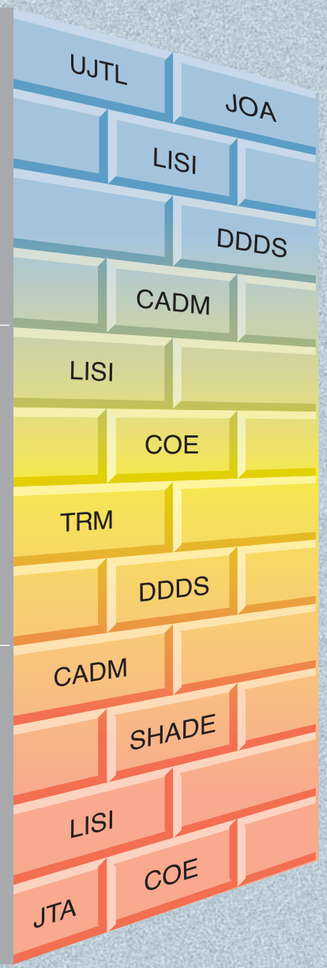
Products

Architecture products are those graphical, textual, and tabular items that are developed in the course of building a given architecture description. The *Framework* defines specific products for describing the operational, systems, and technical views of an architecture, and describes the kinds of information to be captured in each product. *The combination of standardized architecture representations and common information content helps to ensure that multiple architectures can be compared and integrated.*

To further ensure commonality, the *Framework* designates certain products as ***essential***, meaning that every architecture should contain those products. The other products are designated as ***supporting***, meaning that they will be needed for some architectures but not for others.

Automated tools, such as the Joint C4ISR Architecture Planning/Analysis System (JCAPS), are available or under development to assist in building architecture products and storing architecture-related data.





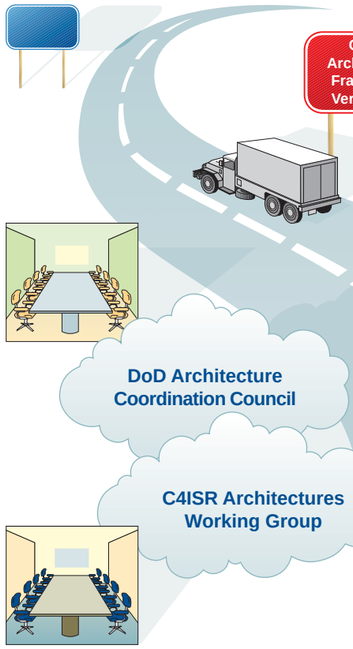
References

In addition to the products that the architect *builds* to describe an architecture, there are a number of formal reference models, guidelines, and standards documents that the architect must *consult* in the process. These *universal reference resources* can be thought of as the common "building blocks" for all architectures. The *Framework* is the vehicle for pulling these references together into a coherent set of guidance for building architectures.

Examples of universal reference resources include the:

- *Universal Joint Task List (UJTL),*
- *Joint Operational Architecture (JOA),*
- *Levels of Information Systems Interoperability (LISI),*
- *Defense Data Dictionary System (DDDS),*
- *C4ISR Core Architecture Data Model (CADM),*
- *DII Common Operating Environment (COE),*
- *DoD Technical Reference Model (TRM),*
- *Shared Data Environment (SHADE), and*
- *Joint Technical Architecture (JTA).*

Strategic Direction



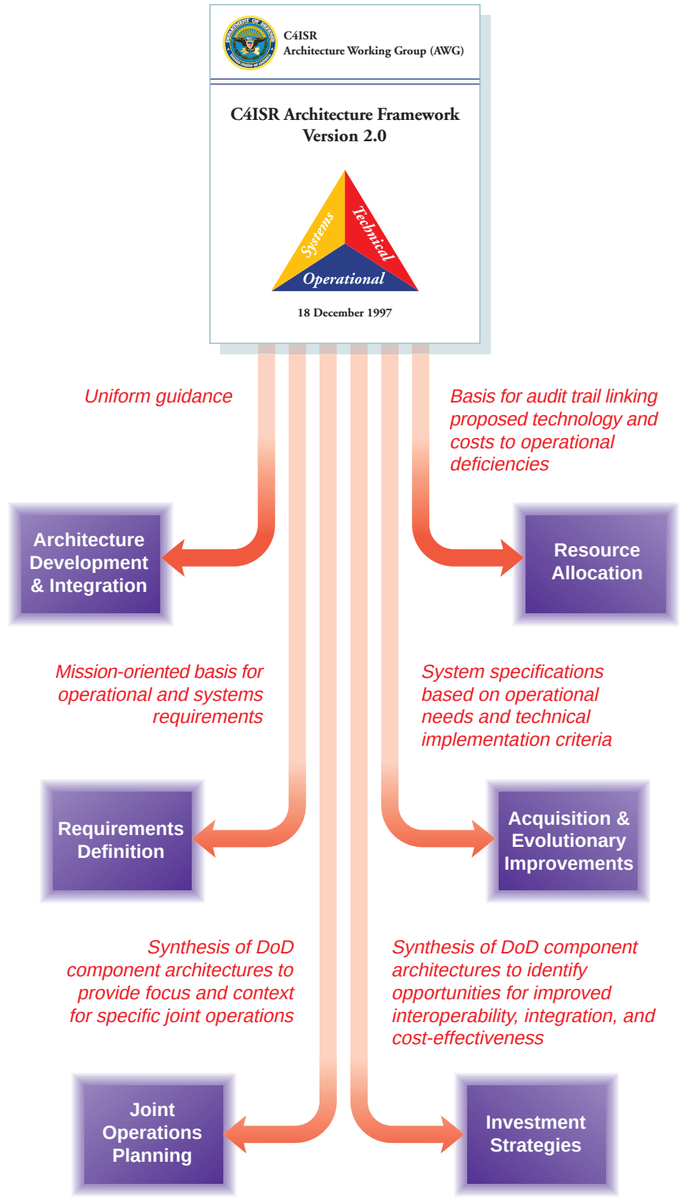
"We see the C4ISR Architecture Framework *as a critical element of the strategic direction in the Department, and accordingly direct that all ongoing and planned C4ISR or related architectures be developed in accordance with Version 2.0. We also direct all addressees examine the* C4ISR Architecture Framework *as a basis for a single architecture framework for all functional areas/domains within the Department."*

USD(A&T), ASD(C3I),
Joint Staff/J6 Memorandum
Subject: *Strategic Direction for a DoD Architecture Framework*,
23 February 1998

"The…IAP…developed very promising concepts and recommendations for the application of architectures to support the improved integration of C4ISR capabilities within DoD. We believe that most of the IAP recommendations warrant the eventual mandate of the DEPSECDEF…we think it is prudent to establish a process…that is intended to evolve, validate and mature… the IAP recommendations in a collaborative environment prior to formal mandate."

Principal Deputy ASD(C3I),
Joint Staff/J6 Memorandum
Subject: *Findings of the C4ISR ITF,*
18 October 1996

The Framework Facilitates All Phases of the "C4ISR Life Cycle"



"The utilization of C4ISR Architecture Framework Version 2.0 *will allow architectures to be compared and integrated within DoD Components and across joint boundaries so that Warfighter interoperability and C4ISR investment decisions can be addressed from a common frame of reference. Experiences with Version 1.0 demonstrate that the concepts and methodology embodied in the* C4ISR Architecture Framework *can be applied across the DoD community. Further,* Version 2.0 C4ISR Architecture Framework *is wholly consistent with the DoD Chief Information Officer's (CIO) responsibility to develop and implement an agency-wide architecture 'model' and Information Technology Architecture (ITA) which conforms to this model."*

USD(A&T), ASD(C3I),
Joint Staff/J6 Memorandum
Subject: *Strategic Direction for a DoD Architecture Framework*,
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Main Menu